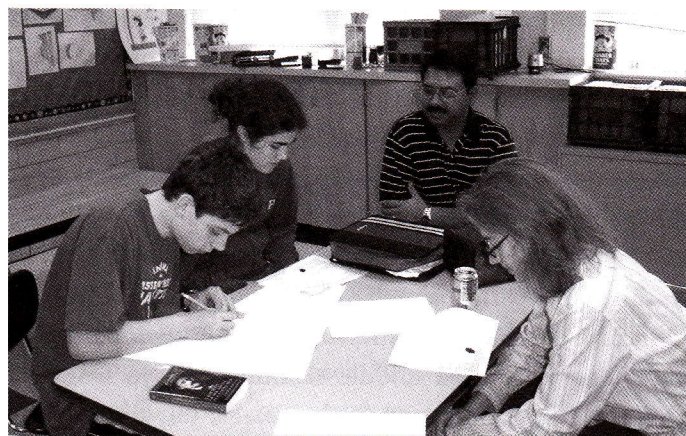


Partnering to Make a Difference

Padmanabhan Seshaiyer

When Ms. Kris Kappmeyer (H-B Woodlawn Secondary Program, Arlington Public Schools) and Dr. Padmanabhan (Padhu) Seshaiyer (Department of Mathematical Sciences, George Mason University, Fairfax, VA) were paired through the AWM Teacher Partnership program in August 2007, they wasted no time contacting each other. Within days, a new collaboration had evolved which has now turned into a very successful AWM teacher partnership that others can consider emulating. Kris, who teaches algebra and advanced algebra, is also involved in preparing students for various mathematics competitions such as the American Mathematics Competitions (AMCs) and Virginia Math Leagues (VMLs). Padhu, who joined George Mason in Fall 2007, has a long history of K–12 collaboration and has directed several K–12 outreach and professional enrichment programs in the last seven years, both for teachers and students at all levels. Kris and Padhu each saw this AWM teacher partnership as an opportunity to build new programs that can enhance mathematics education and encourage more students to consider precollege careers in mathematics, science and engineering. Specifically, there are several programs that Kris and Padhu collaborate on, including:

- **AMC/VML coaching:** Kris and one of her colleagues, Mr. Mark Dickson, co-host an AMC and VML problem solving session each week for the students at H-B Woodlawn who come together and work on past exams. Padhu is now a member of this group also, and together with Kris (see photograph), they help the students to understand the solutions to AMC contest problems each week.
- **Lectures at the school:** Padhu was invited by Kris to present a lecture to the students and faculty on the applications of mathematics to real-world problems. It was a great opportunity for students



H-B Woodlawn problem-solving session

to see how they can actually apply what they have seen in subjects like trigonometry, precalculus, algebra, geometry to real-world problems. Padhu also talked about various mathematical career choices that the students could potentially pursue after graduation.

- **Lectures at the University:** Padhu will be teaching a graduate course, Numbers and Number Theory, for students in the Virginia K–8 Math Specialist program. The course examines concepts contained in the number and operations strands of the Virginia *Standards of Learning* and/or referenced in the National Council of Teachers of Mathematics *Principles and Standards*. Kris has been invited to be a guest lecturer in Padhu's class when he will focus on algebraic connections to number theory in the class.
- **Science Fair:** Something new that has evolved out of this partnership is mentoring students to do science fair projects. Back in Texas, Padhu served on the board of the Science and Engineering Fair and has a lot of experience in this regard. The goal is to use the AWM partnership to help students work on science fair projects (arising from real-world applications) that demonstrate the use of mathematics. Kris and Padhu are excited

about this and hope to have students working on problems that they can use to compete in the regional and state science fairs.

Alicia Hamar, a student from ninth grade in an email to Padhu mentions: "I remember the last time we met, we talked about the types of science/math/medical oriented projects I could do. You mentioned blood aneurysms and that got me curious! If I were to do a project in that category, how could I start? Do you have any recommendations on what I could read, or how to approach this medical area? Thank you for your help!" This is exactly the type of excitement that Padhu wanted to create in the students. Alicia will start to look at how to understand mathematical tools to study the complex phenomenon on fluid-structure interaction that arises in aneurysm-blood flow models.

Kris is very excited about the collaboration and says, "I would like to thank AWM for enabling the collaboration that I am enjoying this year with Padhu Seshaiyer. I am a high school teacher who co-sponsors a math team. Padhu has given freely of his time to help us prepare for various competitions. He also made an inspiring presentation about problem solving and mathematical modeling to our team. He has met individually with students about their

science projects and has offered to mentor them. I hope to visit Padhu's classes this summer and make a presentation to his students. I also hope that my students will serve as a source of data for Padhu's teacher education work. I signed up for the AWM partnership because I thought that it might give me a window into the 'real-world' applications that my students regularly ask for. I got this and so much more. Padhu is a wonderful role model for my students and a colleague with whom I hope to collaborate for years."

Padhu is also very happy to have found a great partner in the K-12 system. He says, "I am impressed with the variety of hats that Kris wears as a teacher. Her enthusiasm, caring attitude for students, her willingness to learn new things and share that with students are some of the many qualities that make her an outstanding teacher. In fact, I was so impressed with her daily classroom worksheets that I requested copies to be used in my class at GMU. They were very helpful to me and the students! This was a great way to share each others expertise through this AWM partnership. I commend and thank Dr. Pao-sheng Hsu, Dr. Suzanne Lenhart and Erica Voolich for such a great program that helps bring together educators at universities and K-12 school systems to make a difference and impact student learning."